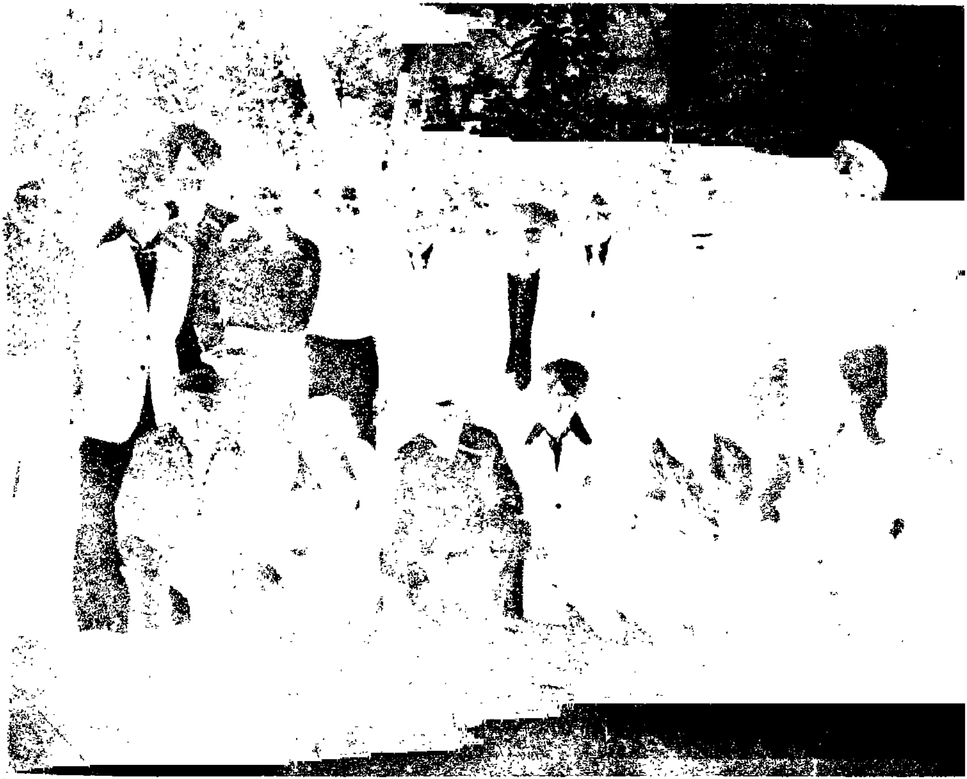
University News

A CHRONICLE OF HIGHER EDUCATION & RESEARCH JANUARY, 1977 80 PAISE



Combined Universities Hockey Team which participated in Jawaharlal Nehru Hockey Tournament held in New Delhi

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Editor : ANJNI KUMAR

Role of Agricultural Universities in Integrated Rural Development

S. P. Pande

Integrated rural development is the focal theme of all the programmes of the year 1976. In fact, this was the theme of the Indian Science Congress held at Waltair in January, 1976, and while presenting the budget, the Union Finance Minister has made provision of Rs. 15 crores for working out suitable strategies for integrated rural development. His scheme envisages a Resource Inventry of the districts and specific action plans for area development thereafter. In elaborating this the Finance Minister observed as follows :

> "Surveys of a global nature and on a grand scale carried out through up-to-date gadgetry are, no doubt, highly impressive. But the results need to be broken up for compact areas and supplemented by local investigation. This is true of soil surveys, ground water surveys and meteorological studies, to name but three areas of direct relevance to rural development. What is critical is not mere disaggregation of survey data, but their evaluation in the local context for generating concrete projects for improved resource use. We have been particularly deficient in the past in this aspect of purposive collation and utilisation of survey data, integrated and oriented towards concrete action at the local level."

Integrated rural development will have to go far beyond agricultural development, reaching into the overall socio-political and the economic system of the country. "Rural delopment" means "rural transformationc—hange not only of the methods of production and of economic institutions but of social and political infrastructures as well, and transformation of human relationships and opportunities". As Shri Subramaniam put it : "What we must aim at is not just some improvement in the yield per unit of land of a few crops or the propping up of the poor through make-believe programmes of employment. What is called for is something more comprehensive and fundamental—a systematic, scientific and integrated use of all our national resources, and as part of this process, enabling every person to engage himself in a productive and socially useful occupation, and earn an income that would meet at least the basic minimum needs. Advances in science and technology now make such an objective viable. The question is how do we go about this task and organise ourselves in the Government and elsewhere for reaching this goal". This rural transformation includes a change in the attitudes of people towards life, work and growth. The spirit of dependence and resignation has to give way to self-reliance, initiative, hope, enthusiasm and resourcefulness and a sense of community. Integrated rural development would also involve changes in the traditional power structures.

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UPSC and the Universities

Sarup Singh*

Plato talked about 'the ancient quarrel' between poetry and philosophy but he seems to have given rise to another quarrel--that between men of action and men of intellect. His own 'philosopher-king' was, of course, at once a man of intellect and a man of action but that remained in the realm of speculation even in his own times. It is an ironical comment on Plato's whole philosophy of politics that he himself had to seek refuge from politics into the Academy. And the most painful part of his experience was that the only person who came nearest to his ideal, Socrates, met a cruel death at the hands of his contemporaries. In ancient India, as we all know, society was quite rigidly divided between those who were entrusted with the task of acquiring and disseminating knowledge and the others who looked after the mundane affairs of society.

The real distinction of the twentieth century world is that now it is the man of intellect who is the real man of action. There are still some Hamlets, of course, who find comfort in the thought that it is only philistines who succeed and that there is a special merit in not being men of action. But by and large the world is run by those who have knowledge and who know how to apply it. Pandit Nehru recognised this ethos of the twentieth century and he admirably described the qualities that he expected modern administrators to possess. While addressing the Institute of Public Administration in 1958, he said : "In a period of dynamic growth, we want as civil servants persons with *minds*, with *vision* and with a *desire to achieve*. We want persons who have *initiative* for doing a job and who can *think* hard to do it" He also said that "in the modern age the success of the public servant depends, in addition to ability, efficien y and integrity, upon his capacity to cooperate with the public" and that public servants should be trained in such a way as to prevent "their developing an ivory-tower attitude to their careers."

It is clear that the kind of civil servant that Pandit Nehru had in mind can be produced only by universities which, in Pandit Nehru's own words, stand 'for humanism, for tolerance, for progress, for the adventure of ideas and for search of truth'. As centres of higher learning universities exist for the cultivation of excellence and the pursuit of knowledge as also for providing opportunities to individuals to get socialized in an atmosphere of equality and free discussion. In a society like ours which is fragmented by caste, religion, language and region—not to mention the vast economic barriers which divide one class of people from another—universities, as training grounds for youth, can provide a *natural* environment for the growth of a healthy, integrated and confident outlook on life. Indeed they alone can help individuals from all walks of life to shed their fears and prejudices and develop a modern approach to various social and other problems Without straining the point, a university may be described as a genuinely liberated, classless society.

I have painted a somewhat idealistic picture of a university and I have done so because I believe that even when universities do not measure upto the ideal prescribed above, they do play the role of a powerful socialising agency. Perhaps the most positive feature of the student movement throughout the world in recent years has been its tendency to bring all students on the same platform as friends and comrades. Even the worst excesses of this movement have left behind exhilerating experiences for the young who shared their joys and sufferings though otherwise they belonged to different social worlds. And in countries where students were able to forge links with the poor and the under-privileged, they emerged out of the fire as responsible adults.

It is obvious that the relationship between the universities and a body like the UPSC which is entrusted with the task of selecting persons for manning the different services in the country must be very intimate. The UPSC cannot select better men than what the universities produce. If universities are genuine centres of learning and culture and if they produce men with a strong moral and social commitment and faith in the future of the country, then, to quote Pandit Nehru's words again, "it is well with the nation and the people". In spite of the almost chronic disappointment of people in authority with our present educational system, the fact is that at least some universities in the country have achieved excellence in various disciplines and they do produce men and women of whom any country would be proud Not all of them, it is true, become civil servants—which is as well, for the country needs, *equally urgently talent in other areas of national* life. But some of the best products of the universities do become civil servants and it is gratifying to record that they do fulfil, to a large extent, Pandit Nehru's expectations. They not only possess ability and integrity of a high order but also vision of a great future for the country.

It must, of course, be added that the growth and development of our universities have been rather uneven and not all universities have done equally well. This fact was brought to the notice of the Golden Jubilee Session of the Association of Indian Universities by Prof A.R. Kidwai, Chairman of the UPSC when he told the assembled Vice-Chancellors that the UPSC had been taking particular care to analyse the deficiencies in the performance of the

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**Member, Union Public Service Commission* candidates at the examinations conducted by it and that the reviews containing comments of examiners in respect of important competitive examinations were circulated for the information of the various educational authorities in the country e.g. the Universities, Ministry of Education, University Grants Commission, Association of Indian Universities, Directors of Education in the States, Boards of Education etc. to enable them to consider measures for remedying such deficiencies in the educational equipment of the candidates as the reviews might reveal.

Most candidates who appear before the UPSC fall under two categories. A small number of them, comparatively speaking, have received professional education, like engineering, medicine, architecture, etc. Though the number of these candidates who appear for the interview is not very large, the number of vacancies filled by the UPSC in these areas is quite substantial. It is in respect of the other candidates however that the interaction between the universities and the UPSC is both extensive and intensive. Over 30,000 candidates applied this year for the IAS etc. Examination and the number is likely to increase in the coming years. The kind of examination that they are required to take cannot in the nature of things be particularly different from what the students have learnt at the university stage. For the last quarter century or so, the syllabi in most university disciplines did not reflect the advances in knowledge that were taking place. Only a few of the universities had modernised the syllabi but a large number of them had not ; nor had the UPSC for that matter.

All this has changed in recent years. The UPSC has made extraordinary efforts to improve the syllabi in most university disciplines. This in turn is being reflected in the attempts now under way in a number of universities to modernise and update their syllabi. There is, of course, a problem there. Universities are at different levels of development. If the UPSC follows the syllabi recently introduced in some of the more innovative universities, candidates from other universities may suffer. At the same time the UPSC cannot and should not do anything which by its example may even remotely lower the standards of knowledge in any discipline.

The universities have without question various functions to perform. Preparing their students to participate in the All India Competitive Examinations is only one of them and sometimes, as some academics maintain quite a minor one. At the same time it is to be recognised that since the Commission is a constitutional authority which is entrusted with the task of selecting suitable candidates for various posts under the Union Government, it has always to keep in mind the *requirements* of the posts. In the light of these requirements it is quite possible that the Commission may make certain innovations which the universities may or may not feel inclined to accept. For instance, it is possible, that at some stage the Commission may insist that all candidates appearing for the IAS and Allied examinations be obliged to offer a compulsory paper in one of the Modern Indian Languages. This would certainly encourage the study of the Indian languages throughout the country. This may even prompt the universities to do more serious thinking about introducing Indian languages as the medium of instruction even at the postgraduate level.

At present the situation is quite confused. Very few universities have made the experiment of using Indian languages as the medium of instruction at the postgraduate level. In fact the view is widespread that replacing English by an Indian language as the medium of instruction at the postgraduate level would be disastrous. It is, of course, true that problems would arise and new challenges would have to be faced. But then some day they have to be faced and it is as well that we start preparing ourselves to face them now. For almost a quarter century we have been talking of these problems but we have not faced them. The effect of this attitude has been that some of the brightest youngmen and women in some of the metropolitan towns have developed almost an attitude of contempt towards Indian languages. Indeed English has become not only the language of knowledge but also the language of culture.

Surprisingly even the State Public Service Commissions are reluctant to adopt Indian languages as the medium of their examinations. The UPSC did offer Indian languages as an alternative medium for two papers for the IAS and Allied examinations but the response from candidates has been very poor. The general feeling seems to be that the moment a candidate opts for an Indian language he is sunk. This is an unfortunate feeling and the UPSC has done nothing to encourage it. The UPSC does its best to select candidates not on the basis of their competence in English but on the basis of the depth of their knowledge in the various subjects, their general mental calibre, intellectual capacity, social awareness and other qualities which are required of an honest and able administrator.

Once it becomes clear to candidates that they must know an Indian language well enough to qualify for absorption in the most prestigious post available with the Union Government, the climate will change dramatically. And then even the metropolitan universities may not hesitate to consider the possibility of accepting an Indian language as a medium of instruction at the postgraduate stage That would make a significant impact on our entire educational system. Maybe the present tension between the elitist institutions and others would also disappear in consequence. It may also generate changes in our social attitudes which are badly needed. The tensions in our present-day society are at times desperate and the under-privileged have no means of discovering their sense of belonging to the country.

The situation has to be corrected. If we want to emerge as a healthy, integrated society, the lead in this respect has naturally to come from the universities.

Planning University Education

S.K. Jha

Patna University has been a teaching-cum-residential University since 1952. It started its new character with ten colleges and continues to have these colleges only. These institutions were full to their capacity even in 1952. But during the last twenty five years, in spite of the effort of the university authorities to restrict admissions to various courses, the student population has grown from five thousand to thirteen thousand. With increase in the number of students, teaching staff had to be increased. The number of teaching staff has increased from 388 to 913. The proportionate increase in the number of students is larger than the increase in the number of teachers. As a consequence student-teacher ratio has worsened. During the same period a number of specialised branches of study have developed. The result has been that the student-teacher ratio in the main stream of the university education today is much worse than it was twenty-five years ago.

The position of space is no better. The areas of these institutions have not expanded. Though a few buildings, here and there, have been constructed to provide more class rooms, yet they are utterly inadequate for the student population. Teachers do not have separate rooms and they have to waste hours per day when they are not engaged in class work.

The research students in the Arts Faculty do not get a place to sit down and read or write. Some of the open spaces are now taken up by buildings. Library accommodation, common room, canteen and play-grounds either do not exist or are utterly inadequate. In their off-hours the students have to loiter about on the roads or the verandahs, creating unacademic atmosphere. Almost the same situation exists with regard to hostels for students and quarters for teachers. The residential university provides hostel accommodation to about 20% of its students and the percentage of teachers who have university flats is much lower. This state of affairs with regard to space and other facilities exists in spite of substantial assistance from the U.G.C. for improving the situation. However, it may be pointed out in respect of buildings, the university authorities are also to blame. During the three plan periods (II plan, III plan and IV plan) the university received Rs. 12029 thousand from the UGC and Rs. 7906 thousand from the State Government for buildings. The university was able to spend only Rs. 4302 thousand out of the grant from the U.G C. and Rs. 2720 thousand out of the grant sanctioned by the State Government. Many factors have been responsible for the poor utilisation of the building grants; but the main cause was the inefficiency of the works department of the university, which has been a big white elephant serving little useful purpose.

During the period 1952-53 to 1972-73 the expenditure of the university per student has increased in current prices. But on account of considerable rise in prices, statement in terms of current prices gives us a very wrong picture. In the absence of a cost of living index, we are presenting below comparative figures of cost per student in terms of index of wholesale prices with 1952-53 as the base.

	Cost Per Student	(Undergraduate)	
	1952-53	1972-73	
	(in Rs.)	Current Prices (in Rs)	Constant Prices (in Rs.)
Science	693.03	1225.48	456.59
Medical	907.22	1762.69	801.22
Engineering	1242.43	2838.00	1057.37
Arts	770.07	727.33	270.97
	Cost Per Student	(Postgraduate)	
Arts	355.97	1050.91	391.54
Science	978.49	3110.11	1158.75

The table above shows that in the case of postgraduate science the cost per student has gone up substantially. Modern science has become rather costly. Study of Science was neglected during pre-Independence days. It is necessary that teaching and research in Scientific subjects should be developed. Looked at from this point of view, we need much larger investment in this faculty. There is marginal increase in per capita expenditure in Postgraduate Arts also. This is mainly explained by the establishment of some special branches of study, mainly in History. In other subjects the cost per student in constant prices has gone down in spite of the development of newer branches of study and much greater output of research.

In the case of undergraduate studies the expenditure per student has fallen everywhere including Medicine and Engineering. The largest decrease has occured in the case of Arts where we have the bulk of student population. As a consequence the quality of teaching has suffered. We have sacrificed quality for catering to popular demand for greater quantity. We are turning out large number of Arts graduates every year who become useless for the society because, not being properly educated, they are not fit for performing useful social functions; and because they have acquired white-collar mentality, they are unfit for physical work. There is large scale unemployment among them. The result is that at great social cost we are producing a large number of unemployable young men.

Another important fact which is revealed by this study is that the contribution of students to the

(Contd. on next page)

BOOKS

1. **'Monograph on Grading for Universities'.**
2. **'Towards Better Questions' (Item Writers Cook Book) Published by Research Cell, Association of Indian Universities, New Delhi, 1976**

1 **'Monograph on Grading for Universities'** gives a fairly comprehensive treatment to the subject and convincingly justifies the need to substitute grading system for the present system of marking on 101 point scale The whole approach is marked by pragmatism, the clear lucid and *catechistic* style, with even a recourse to repetition when required, is not only educative but also stimulating An interesting feature is the recommendation that "numerical marks can be the beginning of the marking procedure' and that "examiners should mark papers as they have been doing but then the final report of the results *should not be in the form of* numerical marks' (P7) It is then left to the universities to undertake "the scaling and thance grading" (P7) The Dandekar method proposed certainly carries conviction, but is perhaps flawed in one respect the range of marks over "the last three years" or more to go into the determination of average range of marks may not have essentially the background procedure of 'randomisation"

The monograph has answered almsot all the "apprehensions and pertinent queries", with regard to the grading system, effectively However, one of the significant apprehensions of marking at the cut points of grades may not appropriately be left to the automecity of the university normative conversion table This necessarily calls for the training of the examiners in marking by grades before the implementation of the system The monograph does hint at the need for it (P 17) but leaves it either to time (P 23) or to a tentative arrangement of "one day work shops" (P 26) It is a matter of crucial significance and nothing should therefore, be left to chance so far as possible The reviewer is not making a plea for the underestimation of the abilities of examiners, but there is no scope for over-estimation either However, the suggestion for keeping "the identity of the student and his college" (P 7) confidential tends to under-estimate the sense of responsibility of examiners and increase the workload of the university

2 **'Towards Better Questions'** *must awaken even some seasoned* examiners out of their slumber and give a jolt to their sense of complacency It contains a fully illustrative account of the principles of Item/Question writing, with a check list of criteria for prevalidation to guide those who care to learn Of course, the illustrative examples are confined to certain subjects only and one wishes that similar examples could be offered for humanities also The booklet goes a long way to prove that Item/Question writin grequires scientific thinking and planning and can no longer left to the whims and fancies of the examiners It would, perhaps have been appropriate to have included some more contrasting illustrations of certain esoteric and ill planned questions set in our university examinations in the past Some illustrations of 'objective items for order abilities" (P 12), specified as such, would not have been off the mark One interesting guidline is the avoidance of high frequency cliches in our question papers like 'write all you know about", 'discuss briefly" explain briefly" etc (P 8,9) Another interesting feature is the use of the subject itself (educational testing) for purpose of illustrations This is what makes the book very useful and handy for training courses and workshops of examiners. A must for all teachers, examiners and educational administrators ! It is high time we appreciate what is said in the Forewood "The kind of questions which are asked in university examinations determine, to a large extent, the kind of teaching that is done in the classroom"

—S P Julka, Z H College, Delhi

(*Contd from previous page*)

expenses of the university has been going down The three main heads of students contributions are (i) Registration, (ii) Tuition and other fees, and (iii) Examination fees In 1952 53 the University received 28 18% of its current revenues from these sources *In 1972-73 the contribution of these sources to the* current revenues of the university came down to 16 91% This means that nearly 83% of the total revenues comes from grants of the State Government or the UGC We have to think seriously whether this heavy subsidisation of higher education is desirable It is not desirable to assist the weaker sections of the community more liberally than at present and to provide larger number of merit scholarships so that meritorious students get encouragement and no really meritorious student suffers on account of the poverty of the guardians? For the first of the students the principle of substantial contribution for the benefit received should be adopted This means that tuition fees and examination fees should be sufficiently increased so that the element of subsidy from public funds should be reduced to less than 50% in the case of students who *come to the university either for luxury or for improving* prospects in life

Some of the facts revealed by this study and the issues that they throw up have been mentioned in the foregoing paragraphs It is felt that sufficient thought has not been given to planning of higher education Planning of manpower should be an integral part of our developmental planning Higher education has to be planned on the basis of prospective demand for different types of human labour Further investment in education has to be determined by the calculus of cost and benefit ■

Convocations

University as a Catalyst

The convocation address of Jadavpur University was delivered by Dr. B.D. Nag Chaudhuri, Vice-Chancellor of Jawaharlal Nehru University. In his address Dr. Chaudhuri said that the survival of the University in the inevitable conflicts between technology and society cannot be through hasty compromises with inept traditions but only through deeper understanding and a steadfast role to protect and propagate scientific and technological thought. The future of the University was interlinked with the future of the teachers and student community. The University could look with greater assurance than most other institutions to the new world view where technology and nature do not try to subvert each other but where man uses technology to preserve and protect nature because in doing so the man assures himself of his future.

Dr. Nag Chaudhuri said that the complex problems of the Universities in India and particularly of a technological university like Jadavpur were intimately related to the interaction of the University with society. As such they were not likely to be resolved easily or in a short time. He pointed out that the country whose population was going to exceed 100 crore marks within the next 24-25 years was going to be a crowded place.

The Chancellor, Mr.A.L. Dias, in his address to the recipients of the degrees said that their academic attainments and labour would be fruitful only when they were able to apply their learning and research to the needs of the community. It is only through constructive involvement in the live issues of today that the learning process could be made meaningful. It was particularly true of a developing country like India where the University must emerge as a powerful instrument for social and economic transformation and as a catalyst for a change. The Chancellor said that great care should be exercised in the topics of research with a view to ensuring that by and large they were purpose-oriented and contribute directly or indirectly to the welfare of the community. It was also necessary to keep in view the need for a multi-disciplinary approach in a University which though primarily devoted to engineering science and technology also taught the social sciences and humanities. This would ensure that technological solutions did not conflict with social and economic objectives. Of a special significance is the step taken by the University to associate industries as well as other agencies in selecting mutually beneficial projects.

Prof. A. N. Bose, Vice-Chancellor of the University said that paucity of adequate space has always threatened to upset the proposals of the academic development of the institution. He said that inter-diciplinary courses like space engineering and technology. bio-engineering and water resources engineering were being introduced from the next session.

AIIMS honours Dr. Salk

The All-India Institute of Medical Sciences, New Delhi conferred the honorary fellowship on Dr. Jonas Edward Salk at a special convocation. Dr. Salk also received the Jawaharlal Nehru award for international understanding. Dr. Karan Singh, Union Health and Family Planning Minister, and the President of the Institute, presided over the function. Dr. Singh lauded the profound humanism of Dr. Salk and described the development of the anti-polio vaccine in 1954 as a major scientific achievement for which the entire world was grateful to him. This provided an example of the benign use of science. He said that if knowledge is not used with wisdom, it could spell disaster to the mankind. Science was neutral and its usefulness and uselessness are dependant on the wisdom of the users He asked the scientists to turn their attention to the health care of children who would be inhabiting the globe in the coming conceptual epoch of Dr. Salk and suggested that 1977 be observed as the year of the child considering that the year 1976 was observed as the year of family planning and the 1975, the year of smallpox eradication in India.

Dr. Singh said that the welfare of the children provided an important index of development in any country. In India a great deal has been done in this direction. He indentified nutrition and immunisation as the two major areas requiring pooling of resources on a top priority basis.

Prof. V. Ramalingaswamy, Director of the Institute, very aptly described the life of Dr. Salk as one of making errors and correcting errors. He said man was today pitted against his own species and his survival depended on his wisdom to live in cooperation and avoiding conflict.

CAMPUS NEWS

Southern Vice-Chancellors meet in Trivandrum

A conference of the Vice-Chancellors of southern universities was held in Trivandrum recently under the Chairmanship of Prof. R.S. Krishnan, Vice-Chancellor of the University of Kerala. Besides matters of common interest, the question of medicare for university employees and the problems of affiliated colleges were considered in some detail. The conference examined the first group medical insurance scheme prepared for the university teaching and non-teaching staff in the University of Madras. It noted with interest that the United India Fire and General Insurance Company is charging a sum of Rs. 97/- per annum per employee and is providing medical benefits amounting to Rs. 2,500 per annum and Rs. 500 per disease. The Madras University has covered its staff with families consisting upto four persons on payment of Rs. 393/- per annum per family. In return they would receive Rs. 10,000 by way of medical benefits—hospitalisation, TB treatment and other home treatments. Most of the universities in Kerala have adopted the reimbursement benefit scheme that are available to its state employees. The conference recommended that other universities which do not have such a scheme of reimbursement of medical benefits for its employees may examine the scheme and negotiate with the United India Fire. and General Insurance Company.

The conference reviewed the problems faced by the affiliated colleges with reference to the provision of adequate accommodation, library, laboratory and qualified teachers, and also the problems connected with the starting of new colleges. It recommended that in view of the constrained financial resources of the State Government as well as the universities, the national policy of strengthening the existing colleges, rather than starting new colleges which are financially non-viable should be followed. Special consideration may be given to educationally backward areas. The fuller use of the existing facilities in colleges should be made use of by arranging for morning and /or evening courses in addition to the usual day programmes. Regarding private appearance at the university examinations the conference was however of the view that such private appearance should be restricted only to the bonafide teachers and candidates undergoing correspondence courses.

The conference also examined the problems faced by the affiliated colleges with regard to postgraduate education and recommended that the universities should follow strictly the University Grants Commission guidelines with regard to postgraduate education in the future. This would involve the university taking up the leadership in identifying the centre for postgraduate and affiliation being granted only when there are at least four PhDs and six MPhils in Science subjects and two PhDs and four Mphils in Social Sciences and Humanities subjects. It further recommended that the UGC Teacher Fellowship Scheme should be fully utilised.

Universities Hockey Team performs well in Jawaharlal Nehru Tournament

A combined universities hockey team participated in the Jawaharlal Nehru Hockey Tournament in New Delhi. The team performed very well. It defeated the Poona XI by 7:0 in the first round. In the third round it had to encounter the formidable ASC XI who have been the reputed national level champions of Beighten Cup, Aga Khan and Ranjit Hockey tournaments. The first match was drawn but the team lost in the replay by a narrow margin of one goal. The performance of S/Shri Zaffar Iqbal (Aligarh), B. S. Yoyoppa (Punjab Agril) and Charanjit Kumar & Bhajan Singh of Guru Nanak Dev was appreciated.

Popular science lectures at Patna

Patna College has organised the second series of popular science lectures in the subjects of Chemistry, Statistics, Mathematics and Biology. These lectures are organised to enable the undergraduate students to have an understanding of the various science topics. They are intended to provide a common sense picture of each discipline. The compulsions of the modren age are such that an Arts student has got to know whatever precious little he can about science. The knowledge of science, acquired by him in his earlier career is rudimentary and has to be supplemented by reading his own magazines, his listening to the wireless and his watching the television. Notwithstanding to this, the spoken word has its own attration and value.

Up to the first half of the last century apathy towards science was commonly encountered in the universities, except in respect of Mathematics, which was held in high esteem. The situation improved appreciably after the mid-sixties of the last century when general interest in science education grew rapidly. In the present century the tremendous scientific progress has taken place and younger universities have been more science minded but the old cleavage between the scientist and artist persists. Even today we have our universities as bi-polar worlds.

They have each a world of science as well as a world of non-science. The scientist is bound to his department, the artist to his college or university. The specialisation in science which has been faster than that in Arts has resulted in a bad communication between the two realms of knowledge. Cross fertilisation remains constrained. Recently a drift has occurred towards Arts in the British universities as a reaction against the extreme specialisation in science but the fact remain that the arts man is strikingly more ignorant of science than the science man of the arts. This underlines the case for effecting a synthesis between science and arts subjects within the corpus of a wide-ranging syllabus for integraing and blending the two into one coherent, intellectual medium or one single culture so to speak. The Patna College according to his Principal his tried to meet the situarion to some extent by its recent efforts of organising these popular lectures.

Punjabi Varsity to restructure its courses

The Academic Council of the Punjabi University, Patiala, has approved in principle the scheme of the University Grants Commission for restructuring of the first degree level courses in arts, science and commerce to adjust them to the developmental needs of the country. In the guidelines to the university the Commission has recommended fifteen new subjects for the undergraduate courses.

The courses suggested for B. Sc. degree are : electronics, applied physics, horticulture, fisheries, home science, applied nutrition, public health, micro biology, bio chemistry, soil science, agro chemicals including fertilizers, dairy science and plant protection.

Agriculture imparting farm management, cooperative management community development, local self government, cultural marketing, cultural anthropology, sociology, panchayat raj, rural industrialisation, social work, labour welfare, industrial relations, trade unionism, marketing and home economics have been suggested for B.A. and B.Com courses.

The Commission has also suggested to the universities and colleges to add such other subjects which they consider to be relevant to the needs of their areas. The need for combining the academic components of courses with some sort of applied component suited to real problems and work experiencee situation in the different regions of the country have also been emphasised. The Commission has however cautioned that the courses offered by colleges in rural and urban areas should not be fundamentally different as the intention is not to create a group of sub-standard colleges.

The university also approved in principle a proposal to institute a diploma course in adult education to produce trained personnel for the social education wing of the Directorate of Public Instruction, Punjab and to hold some refersher-cum-orientation courses in adult education for NSS workers and also for teachers employed in non-formal education centres.

Plea for reconstruction of National History

The thirty seventh session of the Indian History Congress was held *in Koihikode. Dr. Jagdish* Narayan Sarkar in his presidential address said that at first an all-out attempt should be made to carry on analytical and fundamental research and write history at the national plane and the regional or local plane on uptodate lines of scientific enquiry so that accuracy and objectivity were achieved as a recognizable vision of life. He saidt hat the writing of national history should proceed simultaneously on both the planes as the task of the reconstruction could not be adequately performed without intensive regional or historical studies in different spheres.

Alongwith analytical research on both the planes attempt should also be made to write what is called synthetic history which would present the fruits of the research in lucid manner for the benefit of the layman This however should not be subjective or prejudice history. He said that the works of the analytical and synthetic histroians could be supplemented with each other along parallel lines.

Subscription Rates

Period	**Inland**	**Abroad**	
		Surface	**Air**
	(Rs.)	**(Rs.)**	**(Rs.)**
1 year	**16.00**	**80.00**	**140.00**
2 years	**30 00**	**150.00**	**260.00**
3 years	**44 00**	**220.00**	**360 00**
5 years	**72 00**	**350 00**	**550 00**
Single copy	**00 80 ps.**	**4.00**	**8.00**

The Journal is mailed on 1st & 16th of every month.

Dr. Sarkar said that popular adaptations from the works of the first two tiers should be made so that the masses might understand the broad current of history and culture of the country. All modern media of instruction including the newspaper, radio and television should be harnessed for this purpose.

He appealed to the University Grants Commission and the Indian Council of Historical Research to extend the scope of their grants to 'wider sections of teachers and students.

State Boards meet in Trivandrum

The eighth conference of the Boards of Secondary Education was held in Trivandrum. The conference recommended that the new pattern of education be introduced as early as possible throughout the country. The +2 stage should form a part of the school system. It also suggested that the States prepare a time schedule for implementing these recommendations. If due to administrative reason, in some states the +2 education is imparted in colleges as a transitional measure, the academic control should cease with the universities and be transferred to the Boards.

The conference noted the objectives of ten-year school education and the subjects to be taught as stated in the NCERT publication 'curriculm for the ten-year school'. The conference also recommended that the work experience, science and mathematics should form essential elements of the curriculum for the ten year schools. The massive programme of orientation of teachers and general public should be organised by the Boards to familiarise them with the philosophy and content of the new pattern of education. The NCERT's publication on Higher Education and its vocationalisation was commended.

Screening test by UPSC

Prof. A.R. Kidwai, Chairman of the Union Public Service Commission while addressing a meeting of the Indian Institute of Public Administration in Ajmer said that the Commission would soon make an objective type of screening test for the recruitment to the All-India services. A small fee would be charged for this purpose and only those who qualify will be allowed to appear in the final examination. This step has become necessary as the number of candidates appearing at the test has increased by about 5,000. In the last examination for Central services, 30 000 candidates had appeared.

Steps to inspire public confidence in the examinations conducted by the Commission have been taken. The selection work is now completed within six weeks for all posts from the last date of receipt of the applications. It is proposed that all-India examinations of various disciplines should be completed in summer vacations so that the teaching work in the universities is not dislocated.

Prof. Kidwai stressed the need for a national employment policy correlated with the education policy.

Panel to assess farm varsities

A twelve member committee under the chairmanship of Dr. M. S. Randhawa, former Vice-Chancellor of Punjab Agricultural University, has been appointed by the Government of India to assess the functioning and the role of agricultural universities in the country. Dr. B.S. Minhas, former Member of the Planning Commission would also be one of its members.

The Pantnagar and Punjab Agricultural Universities were the first agricultural universities to be set up in the country and they were patterned on the model of land grant colleges of the United States. The need for setting up separate universities for agriculture was felt because the general universities could not afford enough specialised attention to agriculture which had assumed a major problem for the country. Besides there was an urgent need for familiarising the farmers with the modern techniques of agriculture. This required the attention of a large number of agricultural officers who could go to the field as well as educate the farmers.

At present there are twentyone agricultural universities in the country. They have played a leading role in bringing about the green revolution and taking the new technology to the field. The country has recently attained record food production and the problem now is not only to maintain the existing pace of development but also to ensure that there is no decrease in the growth rate curve.

Rural growth and universities

The National Staff College of Educational Planners and Administrators organised a conference on 'education for rural development' in New Delhi. It recommended that universities should offer courses on social and economic development in the rural areas as part of their graduate and postgraduate curricula. These courses should be based on an inter-disciplinary approach. It suggested that the University Grants Commission should set up special cell to deal with the promotion of rural development through universities and colleges. The conference also stressed the need for training teachers at all levels to make them aware of the various problems of rural community and the role that they must play in their solution and development. The conference also recommended that education in rural areas should offer opportunities for training young boys and girls for adequate employment in the rural areas. Every rural agency should build an educational component in its programme.

HAU gets Rs. 2.60 crores from ICAR

The Indian Council of Agricultural Research has recommended a financial assistance amounting to Rs. 260.59 lakhs during the Fifth Plan period for the Harayana Agricultural University. The university has fully utilised the operational freedom for identifying the problems of farmers both for research and training Joint consultation between the officers of the agriculture department and the experts of the university have been regularly held. This has resulted in the universities evolving a structure which includes a systematic and comprehensive design for research as well as extention education and training. All facilities have been provided at Bawal, Kaul and Hissar which represent the three different agro-climatic zones in the State.

The Krishi Gyan Kendras have been provided at all the 18 district headquarters of the State. These kendras have been useful additions to the university set up. They have greatly enlarged its potential. New and useful technology among farmers could be judiciously supplied research information and technology which is relevant and meaningful to farmers.

The university proposes to construct new buildings for the Seed Technology and Food Science Technology laboratories. A hostel for home science college and another for women teachers and research scholars would be constructed. It is proposed to air-condition some parts of the university library.

Rohilkhand campus

The foundation stone of Rohilkhand University buildings was laid by the Chief Minister of Uttar Pradesh in the new campus located five kilometers from Bareilly in the Pilibhit district.

Shri N.D. Tewari in his address said that instead of opening more universities it would be beneficial to consolidate the existing universities and colleges in the State. Efforts should be made to equip the existing institutions with more up-to-date libraries and modern equipment instead of increasing their number. He said that in order to avoid duplication, constituent colleges of a university should endeavour to specialise in a particular branch of learning. He appealed to the academicians and educationists to help the State Government in preparing viable schemes and projects so that the State Government could take full advantage of the grants provided by the University Grants Commission. In fact viable projects were needed in all spheres such as agriculture, industry, power and irrigation.

Calcutta to review honours courses

The Academic Council of Calcutta University has set up a committee to determine the syllabi, course content and examination system, for the various degree courses with the introduction of the new patern of education. The committee will also ascertain whether the degree course will be of two years duration for pass course and three years for honours course and whether there should be a bridge course of one year's duration to enable such pass course students to complete the honours course after doing their pass course. The committee would also examine the suggestions of the All-India Technical Education and the All-India Medical Council in this respect.

Cochin workshop on translation

The Department of Hindi, University of Cochin has started an evening postgraduate certificate course in translation and secretarial drafting in Hindi. The Department conducts a regular postgraduate degree course in Hindi language and literature.

The University Grants Commission has now sanctioned funds for organising a workshop on translation. The workshop would be held from 10th to 16th February, 1977 and about twenty-five participants from Kerala and other South Indian States are expected to participate. Special attention would be focussed on translation of technical subjects, training of translators, translation from Indian to foreign languages and vice-versa, different use of translation, use of technical terms in translation, practical problems of translation.

Aligarh centenary celebrations

The Aligarh Muslim University has completed its hundred years existence on January 8, 1977. The university in the centenary year will organise a number of symposium, seminars and cultural programmes. Old students and eminent personalities would be invited to a commemoration meeting. Efforts would also be made to create more job opportunities for the students during the centenary year.

MAMS recognised

The postgraduate medical qualifications of the Academy of the Medical Sciences granted on the basis of the results of the examinations conducted by the Academy on behalf of the National Board of Examinations is to receive the statutory status. According to Dr. (Miss) S.Padmavati, President of the National Board of Examinations the Government had amended, after consulting the Medical Council of India, the first schedule of the Indian Medical Council Act of 1956 to include MAMS among the recognised medical qualifications.

Courses in tea technology

Postgraduate diploma courses on Tea Technology, Water Power Engineering, River Training and Flood Control Engineering would soon be started in the Jalpaiguri Government Engineering College. The introduction of these subjects would be of a special benefit to the resident of the region.

Nanak Bhavan for Ahmedabad

The Gujarat University will construct Guru Nanak Bhavan at a cost of Rs. five lakhs to be provided by the Central and State Governments under the national scheme of establishing Guru Nanak Bhavans in each State. The foundation stone of the building was laid by Dr. Satish Chandra, Chairman of the University Grants Commission. The building would provide for cafeteria and kitchen for about 200 students. An assembly hall and a seminar hall would also be constructed in addition to a hobby workshop centre. The Bhavan will provide library facilities for specialised studies. Provision would also be made for indoor games for the benefit of students in the Bhavan.

UP provides new scales for Principals

The Uttar Pradesh Government has revised the pay scales of postgraduate degree college principals and brought them at par with the grade of Professors in universities. The new grades are Rs. 1500-2500 and will be effective from January 1, 1977 Those principals who head a college having at least one thousand students, two faculties and postgraduate teaching in a minimum of six subjects will be eligible to get the new salary scale.

New postgraduate courses in JNTU

Jawaharlal Nehru Technological University, Hyderabad, has decided to further enlarge the scope of its courses in the postgraduate school of continuing technological education. The two new degrees of MSc. and Ph.D. would be opened to qualified and eligible candidates anywhere in the country. The scholars would be allowed to work for these research degrees under external guides approved by the university. This would be another significant addition to the courses already conducted by the postgraduate school of the university.

ISM jubilee seminar

As part of the golden jubilee activities, the Indian School of Mines, Dhanbad, organised an Inter-disciplinary Seminar on Mineral Development in Eastern India The Focus of the Seminar was on planning for exploration of economic minerals and rocks ; scientific exploitation of the minerals; planned benefication and utilisation; case studies on integrated planning for exploration, exploitation, benefication and utilisation. The Seminar was attended by the representatives of States Directorate of Mines and Geology, various mining and mineral organisations operating in eastern India.

The School also organised an Industrial Exhibition-cum-Book Fair on this occasion.

Ranchi to teach tribal languages

Ranchi University has decided to introduce teaching of Adivasi languages like Oraon, Mundari and Nagpuria from the next academic session. This is for the first time thatt eaching of the tribal language would start in a state university. The Inter-University Board of Bihar at its meeting held in Patna approved the creation of one post each of lecturers in these three languages under Ranchi University Service.

Hari Om Ashram Award for Dr. Atam Prakash

Dr. Atam Prakash, Professor and Head of the Department of Surgery, All-India Institute of Medical Sciences, New Delhi, has been awarded the Hari Om Asharm Award for his research on 'Wound healing in diabetes'. The award is given for the best research work in the medical field every year.

Prof. Atam Prakash has also been elected President of the Association of Surgeons of India for 1977. The healing wound in diabetes under controlled conditions according to the researches of Dr. Asam Prakash had opened new vistas in the understanding of the biology of the entire healing process.

INDIAN SCHOOL OF MINES
DHANBAD-826004.

No. 615003/76 **Dated December 20, 1976**

Entrance Examination (1977) for admission to three-year condensed B.Tech degree programmes in (i) Mining Engineering and (ii) Mining Machinery.

Indian School of Mines, a 'deemed' University, invites applications for its all-India Entrance Examination for admission to its three-year condensed programmes leading to the award of the degrees of B.Tech. (Mining Engineering) and B.Tech. (Mining Machinery). The Examination will be held on May, 20 and 21, 1977. The session is likely to commence in the last week of June 1977.

Likely Examination Centres

Bangalore, Bombay, Calcutta, Delhi, Dhanbad, Hyderabad, Nagpur and Udaipur.

Prescribed Qualifications :—A pass in S.S.L.C./Matriculation or Higher Secondary (or equivalent examination and a Diploma in Mining or Mine Surveying for the B.Tech. (Mining Engg.) Programme and Diploma in Electrical/Mechanical Engg. for the B.Tech. (Mining Machinery) Programme. Candidates should have at least **three years** industrial experience. Preference would be given to sponsored candidates.

Prescribed application forms and Memorandum of Information will be available from end of January 1977 upto March 15, 1977 on payment of Rs. 5/- by Money Order payable to Registrar, Indian School of Mines, Dhanbad-826004.

Applications in the prescribed form complete in all respect should reach the Registrar, Indian School of Mines, Dhanbad-826004 by **March 22 1977.**

M S. Ramamurthy
REGISTRAR

NAGPUR UNIVERSITY

Employment Notice

(Combined Advertisement 'C' and 'D'—See detailed note below)

Applications are invited for the following posts in the University Department so as to reach the undersigned on or before **1st February, 1977.**

I. Professor : (1) Economics, (2) Cellulose Technology, (3) Philosophy (Modern Logic), (4) History (Preferably Modern History), (5) Psychology, (6) Sociology, (7) Public Administration, (8) Home-Science (Home-Management/Food and Nutrition), (9) Chemistry (Theoretical/Inorganic/Quantum), (10) Physics, (11) Zoology (Ichthyology), (12) Biochemistry (Metabolism), (13) Mathematics (Modern/Applied Mathematics/Operational Research), (14) Education (New Mathematics), (15) Botany (One each).

II. Reader : (1) German, (2) Pali and Prakrit, (3) Journalism, (4) Economics (Statistics), (5) Economics (Econometrics), (6) Political S ience, (7) Geology (Mineral Prospecting/Geo-Chemistry), (8) Applied Mathematics, (9) Education (New Mathematics) (One each).

III. Lecturer : (1) Sanskrit, (2) Russian, (3) French, (4) Zoology (Ichthyology), (5) Geology (Mineral Prospecting/Geo-Chemistry), (6) Education (New Mathematics) (One each).

Scale of Pay :

(i) Professor	...	Rs.	1100-50-1300-60-1600.
(ii) Reader	...	Rs.	700-50-1250.
(iii) Lecturer	...	Rs.	400-40-800-50-950.

Note :—*The above scales are likely to be revised as per U.G.C. recommendations.*

Qualifications :

(I) Professor : (Except for the Professor in Cellulose Technology).

(i) A Scholar of eminence with a Doctorate Degree of recognised University in the subject concerned with research publications of merit.

(ii) Consistently good academic record with First or High Second Class (B+) Master's Degree in the relevant subject of a recognised University or equivalent degree of a Statutory Institute.

(iii) Ten years teaching experience *out of which minimum of 5 years should* be of Post-Graduate teaching and research/professional experience in the subject concerned.

(iv) Proved experience of guiding doctoral level research.

Note :—For the post of Professor in Cellulose Technology :—

(i) the candidate must have Degree in Paper Technology or in Chemical Engineering or in Textile Technology in at least high second class and Ph.D. in any of the above subjects with or without Master's Degree or M.Sc. Chemistry in High Second Class with Ph.D in Cellulose Chemistry or Cellulose Technology.

(ii) At least he must have 10 years teaching, research or industrial experience in the field of Cellulose Technology.

(II) Reader :

(i) Doctorate Degree of a recognised University in the subject concerned.

(ii) Consistently good academic record with First or High Second Class (B+) Master's Degree in the relevant subject of a recognised University or equivalent degree of a Statutory Institute.

(iii) (a) Not less than 5 years experience of the teaching upto Degree Classes;

(b) Post-graduate teaching experience shall be given preference.

(iv) Capacity to guide doctoral level research.

(III) Lecturer :

(i) Doctorate Degree of a recognised University in the subject concerned or published research work of an equally high standard.

(ii) Consistently good academic record with first or high Second Class (B+) Master's Degree in the relevant subject of a recognised University or equivalent degree of a recognised University or Statutory Institute.

(iii) Persons having teaching experienc at least upto degree classes will be preferred.

Note :—For the post of Lecturer in Education (New Mathematics), the candidate must have passed B.A. or B Sc. with New Maths and M.Ed. with Ist Class or Second Class (B+) with Mathematics as one of the subjects)

The Selection Committee may *relax the above qualifications in the case of otherwise exceptionally qualified candidate, only if candidates with aforesaid qualifications are not available and if not considered suitable. Such candidates, if selected, will have to acquire the prescribed qualifications within five years from the date of their appointment.*

At first instance all the above posts as per advertisement "C" will be treated as reserved for backward communities, viz, SC/ST, VJ/NT/OBC/ and if suitable *candidates are not found from the backward communities, candidates as per advertisement "D" will be considered on general merit.*

Separate applications are necessary for both "C" and "D" advertisements, as advertisement "C" is exclusively for backward communities.

Eight copies of prescribed application forms, with particulars of details of qualifications, specialisations, etc. will be supplied on payment of non-refundable fee of Rs. 5/- by Crossed Indian Postal Order payable to the undersigned alongwith self-addressed envelope bearing postal stamps worth 00-70 paise.

Last date for supply of blank forms—**21st January, 1977.**

B Y. Aher
REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY, KANPUR

KANPUR-208016

Advertisement No. 31/76

Applications are invited for the following posts in the Computer Centre *of the Indian Institute of Technology,* Kanpur.

1. SYSTEMS PROGRAMMER :

One Post
Pay scale : Rs. 700-40-900-EB-40-1100-50-1300

Essential Qualifications and Experience :

A first class or high second class Master's degree in Mathematics, Statistics or Physics, or a Bachelor's degree in Engineering. Five years experience in Assembly language programming. Experience in designing of system software. Selected candidates will be expected to develop and maintain system software, act as consultants and operate computers.

Desirable Experience :

Experience in scheduling and supervising operations in a computer facility.

Age : Less than 35 years.

2. **ASSOCIATE PROGRAMMER** :

One Post
Pay scale : Rs. 650-30-740-35-880-EB-40-960

Essential Qualifications and Experience :

A first class or high second class Master's degree in Mathematics, Statistics, Physics or Bachelor's degree in Engineering Atleast two years of programming experience in FORTRAN and Assembly language. Selected candidates will be expected to develop and maintain programmes, act as consultants and operate computers.

Age : Less than 30 years.

Posts are permanent and carry retirement benefits in the form of CPF Scheme. CPF-cum-Gratuity Scheme or GPF-cum-Pension-cum-Gratuity Scheme as may be opted as per rules. The age of retirement is 60 years.

During the first year the appointment will be on probation. Besides pay, posts carry allowances according to institute rules, which at present correspond to those admissible to Central Government employees stationed at Kanpur. Higher initial pay is admissible to exceptionally qualified and deserving candidates. Candidates called for interview will be paid second class railway fare for travel inside India, from the place of duty to Kanpur and back by the shortest route.

The Indian Institute of Technology, Kanpur has well equipped laboratories and central facilities. The Computer Centre has I.B.M 7044, 1401 and 1800 and PDP 1 systems as also ECIL TDC 316 and a group of experienced programmers. The Institute has a well stocked library with more than 1,50,000 volumes and 1,300 periodicals. The campus facilities include Primary and Higher Secondary Schools, a Health Centre and a Shopping Centre.

Applications should be made on the prescribed forms obtainable free of charge from the Registrar of the Institute by sending a self addressed unstamped envelope of 25 x 10 cms. size. Applications should be accompanied by a postal order for Rs. 7.50 (Rs 1.86 for SC/ST candidates). All applications should reach the Registrar, Indian Institute of Technology, Kanpur-208016, U.P. on or before **January 31, 1977**.

Candidates selected will be expected to join the Institute at the earliest.

ROHTAK UNIVERSITY, ROHTAK

Advertisement No. 1/77

Applications are invited on plain paper (through proper channel in the case of those already in employment) for the following posts, furnishing complete bio-data i.e. name, father's name, date and place of birth, nationality, permanent and correspondence addresses, academic and professional attainments from Matriculation onwards, alongwith attested copies of certificates/testimonials, publication(s) ane Research project(s) undertaken; languages known, details of visits to foreign countries, names and addresses of atleast two persons well acquainted with the academic and professional work, so as to reach the REGISTRAR, ROHTAK UNIVERSITY, ROHTAK latest by JANUARY 25, 1977 (February 8, 1977 for those who are abroad). The applications should be accompanied with Indian Postal Order (s) for Rs. 7.50 drawn in favour of the Comptroller, Rohtak University, Rohtak payable at Rohtak Post Office. Ex-servicemen, Scheduled Caste/Tribes & Backward Class candidates exempted from application fee.

1. Readers in Physics in the grade of Rs. 1100-50-1300-60-1900.
2. Lecturers in Physics in the grade of Rs. 700-40-1100-50-1600.

The posts also carry usual allowances as admissible under the University rules in force from time to time.

QUALIFICATIONS :—

a) Consistently good academic record with 1st or 2nd class Master's degree (with atleast 55% marks) in a relevant subject or an equivalent degree of a foreign University; and

b) A Doctor's degree or published work of an equally high standard.

(contd. on page-47)

INDIAN SCHOOL OF MINES
DHANBAD-826004.

No. 615002/76 **Dated December 20, 1976**

Entrance Examination—1977

The Indian School of Mines, a 'deemed' University, invite applications for the Entrance Examination for admission to its 4-year programme of studies leading to the award of (a) B. Tech. degrees in Mining Engineering and Petroleum Engineering, and (b) M.Sc. degrees in Applied Geology and Applied Geophysics. A B. c. (Hons.) degrees in Applied Geology and a B.Sc. degree in Applied Geophysics is awarded after successful completion of two years of the 4-year programme.

The Entrance Examination will be held on Friday, the 13th and Saturday, the 14th of May, 1977. The new session is likely to commence in the last week of June 1977

The likely centres for the Entrance Examination are :— Ahmedabad, Assansol, Bangalore. Bhopal, Bombay, Baroda, Calcutta, Chandigath, Coimbatore, Cuttack, Delhi, Dhanbad, Dibgoi, Gauhati, Gudur, Hyderabad Jaipur, Jodhpur, Keonjhar, Lucknow, Madras, Muzaffarpur, Nagpur, Patna, Ranchi, Sahdol, Simla, Srinagar, Trivandrum. Waltair.

Prescribed Qualifications :—A pass in the plus 2 stage after 10 years schools stage (Intermediate Science, 2 years Pre-degree/ Pre-University Examination) with Chemistry, Mathematics, Physics and English or 1st year examination of the 3-year degree programme or equivalent examination (with Physics, Chemistry, Mathematics and English). Those who have appeared in the above examinations are also eligible to apply but should submit necessary evidence of having passed the qualifying examination by June 25, 1977.

Age Limit :—21 years for B.Tech in Petroleum Engineering and 22 years for other programmes as on October 1, 1977. The age limit is relaxable by three years for Scheduled Caste/Scheduled Tribe candidates.

Prescribed application forms and Memorandum of Information may be available from January 30, 1977 upto March 10, 1977 on payment of Rs. 5/- by **Money Order** payable to the Registrar, Iudian School of Mines, Dhanbad-826004.

Applications in the prescribed form complete in all respects should reach the undersigned latest by **March 15, 1977**

M.S. Ramamurthy
REGISTRAR

RAVISHANKAR UNIVERSITY RAIPUR

Advertisement

Applications are invited on the prescribed form (Seven copies) obtainable from the Registrar on payment of Rs. *5.00 in cash or by crossed* Bank draft with a self addressed envelope of 23 x 11 Cm. of size with postage stamp worth Rs. 1.50 affixed on it for the following posts:

Applications along with copies of testimonials & certificates must reach the Registrar's office on or before **31st January 1977**.

	No.	Specialisations
I. PROFESSORS		
(i) Bio-Sciences	one	Organismal Physiology. Environmental biology and microbiolcgy.
(ii) Economics	one	Growth and Development.
(iii) Linguistics	one	Open (Phonemics & Phonetics Desirable.)
(iv) Mathematics and Satistics.	one	Statistics.
II. READERS		
(i) Anthropology	One	Social Anthropology
(ii) Bio-Sciences	One	[illegible]
(iii) Chemistry	One	[illegible] cal analysis of Environments Instrumental method Desirable.)
(iv) History	One	Modern Indian History.
(v) Physics	One	Solid State Physics
(vi) Psychology	One	Industrial
(vii) Sociology	Two	(i) Industrial. (ii) Inter-disciplinary-Research work on Indian Society and traditional Culture.
III. LECTURERS		
(i) Anthropology	One	Open
(ii) Bio-Sciences	Two	Cytogenetics. Cell Physiology and Bio-Chemistry.
(ii) Chemistry	One	Open
(iv) Geography	One	Open
(v) History	One	Modern Indian History
(vi) Mathematics & Statistics	Two	(i) Statistics (ii) Mathematics.

SCALES OF PAY

(i) Professor	1100-50-1300-60-1600/-
(ii) Reader	700-50-1250/-
(iii) Lecturer	400-40-800-50-950/-

NOTE :—The question of the revision of Pay Scales as per UGC recommendations of pay scales is under consideration of the State Government. As and when the revised pay scales come into force, the qualifications and other conditions appurtenant thereto shall ipsofacto follow suit.

Qualifications

1. **Professors**

(a) A first or Second class Master's degree of an Indian University or an equivalent qualification of a Foreign University in the subject concerned.

(b) Either a degree of Doctorate standard or published work of high standard.

(c) Not less than 10 years experience of Postgraduate teaching and experience of successfully guiding research.

2. **Readers**

(a) and (b); Same as for Professor with postgraduate teaching experience of five years and three years experience of guiding research.

3. **Lecturers**

(a) Same as for Professor and Reader and (b) A research degree in the subject or experience of teaching Degree and/or postgraduate classes will be desirable qualification.

General :

Fifteen percent of the posts in each department are reserved for the candidates belonging to Schedule caste and 18% for the Scheduled Tribe candidates.

Contributory Provident Fund, dearness and other allowances and other benefits are available as per University Rules. Higher initial salary in the scale may be considered in case of exceptionally qualified and experienced persons. Qualifications and Experience relaxable in special cases. Candidates in employment must submit their applications through their present Employer. Proficiency in Hindi will be preferred. The University reserves the right not to fill any post without assigning any reason thereof. Applicants called for interview will have to bear their own expenses.

H. N. Shukla
REGISTRAR

INDIRA KALA SANGIT VISHWAVIDYALAYA KHAIRAGARH (M.P.)

(University of Music and Fine Arts)

Corrigendum

The last date for receipt of applications for all the posts of Professor, Readers and Lecturers originally published in the University Advertisement dated the 6th December, 1976, is extended upto the 15th March, 1977. Last date for other posts viz :— Research Assistant, Tabla Instructor, Technicians (Musical Instruments) and Tabla Accompanist remains the same i.e. 25th January, 1977.

D.K. Ghosh
REGISTRAR

UNIVERSITY OF JABALPUR

Advertisement

No. Estt./76/2319 Dated 30th, December, 1976.

Applications on plain paper containing details of educational qualifications and experience etc. accompanied with a crossed Indian Postal Order for Rs. 5/- are invited for post of Registrar in the scale of Rs. 1100-50-1300-60-1600 with usual allowances permissible by the University. A higher starting salary may be given to an exceptionally qualified and experienced person. Benefits of Contributory Provident Fund and leave will be available according to University Rules. A candidate should not be over 55 years on 1st February, 1977 and must possess at least a Second Class Master's degree with at least 10 years' experience of work in an administrative post in a University or in an administrative post in an Education Department/Statutory body of the Central or the State Government or experience as a University or College teacher for at least 12 years. The applicants serving in the employ of State/Central Governments of University, should have continuous good service record. Preference will be given to persons having experience of Administrative, Examination and Accounts work Proficiency in Hindi is essential. Persons already in service should apply through proper Channel They may sent an advdnce copy of their application within the due date and should bring 'No objection Certificate' from their employers when called for interview. Applications along with copies of testimonials should rerch the undersigned on or before **31st January, 1977.** All applications should be sent by Registered post.

(B.K. Mishra)
Asstt. Registrar (Adm)
University of Jabalpur, Jabalpur.

THE UNIVERSITY OF KASHMIR SRINAGAR

NOTICE

In continuation of this office notice of even No dated 29-11-1976, the last date for receipt of application forms for the posts of **Reader in** Urdu and Physics is extended upto **31st January, 1977.**

(Saif-ud-Din Soz)
REGISTRAR

CENTRAL INSTITUTE OF ENGLISH AND FOREIGN LANGUAGES

HYDERABAD 500 007

Advertisement No. XIV/1976-77

Applications on the prescribed form together with necessary application fee, are invited for the following posts, in the Institute service, so as to reach the undersigned on or before 25-1-1977.

I. Professors/Senior Fellows

Scale : 1500-60-1800-100-2000-125/2-2500

1. Professor in the Department of English Literature
2. Professor in the Department of Arabic

Qualifications

Essential

i. Consistently good academic record with at least a high second class (B+) Master's degree in the Language concerned.

ii. A Docrorate degree or published work of an equally high standard.

iii. At least five years' experience of teaching post-graduate classes and guiding research in a senior position.

iv. **For Post No. 2**—Specialisation in Modern Arabic.

Desirable

For Post No. 1

i. Stylistics and Literary Interpretation and/or Specialisation in Modern English Literature and Criticism.

ii. Special interest in English Language Teaching Programmes.

iii. Special interest in Aesthetics.

For Post No. 2

Experience of organising courses for training of teachers/translators/interpreters in Modern Arabic.

II. Readers/Fellows in the following Departments/Centre

Scale : 1200-50-1300-60-1900

1. Department of Phonetics & Spoken English
2. Department of Methods
3. Department of Materials Production
4. Department of Extension Services
5. Department of Radio, TV & Cinematography
6. Department of Correspondence Courses
7. Department of French
8. Department of German
9. Department of Russian
10. Department of Arabic
11. **Regional Centre, Shillong**

Qualifications

For Post No. 1

Essential

i. Consistently good academic record with at least a high second class (B+) Master's degree in English.

ii. A Doctorate degree in Linguistics/Phonetics or published work of an equally high standard.

iii. Specialised training in the Phonetics of English.

iv. At least five years' experience of teaching at the college level or in a teacher-training institution including experience of teaching Phonetics and Spoken English.

Desirable

Specialisation in experimental Phonetics.

For Posts 2,3,4,6 and 11

Essential

i. Consistently good academic record with at least a high second class (B+) Masters' degree in English, Education or Psychology, with high level competence in English.

ii. A Doctorate degree or published work of an equally high standard.

iii. Specialisation in Psycholinguistics or Socio-linguistics/Curriculum Construction/Educational Technology/Programmed Instruction/Computer Programming/Stylistics and Literary Interpretation.

iv. At least five years' experience of teaching at the college level or in a teacher training institution

Desirable

For Posts 2,3,4 and 11

i. Specialised training in the teaching of English.

ii. Experience of producing and evaluating teaching materials.

For Post No. 6

Experience of teaching English through Mass Media or Correspondence Course.

For Post No. 5

Essential

i. Consistently good academic record with at least a high second class (B+) Masters' degree in English or Education, Mass Communication or Mass Communication Arts with high level competence in English.

ii. A Doctorate degree or published work of an equally high standard.

iii. Specialised training in teaching through Mass Media

iv. At least five years' experience of teaching producing educational broadcasts in a recognised institution.

Desirable

Knowledge of broadcasting media and experience of producing TV Programmes.

For Posts 7,8,9 and 10

Essential

i. Consistently good academic record with at least a high second class (B+) Master's degree in the subject concerned or an equivalent qualification with a good command over English.

ii. A Doctorate degree or published work of an equally high standard.

iii. At least five years' experience of teaching the concerned subject at the college level.

iv. **For Post No. 10** : Specialisation in Modern Arabic.

Desirable

i. Specialised training in the teaching of the concerned subject.

ii. Experience of producing materials for the teaching of the subject concerned and/or translation and interpretation.

iii. High level competence in English.

III. Lecturers/Associate Fellows in the following Departments/Centre

Scale : 700-40-1100-50-1600

1. Department of Phonetics & Spoken English
2. Department of Linguistics & Contemporary English
3. Department of Extension Services
4. Department of Evaluation
5. Regional Centre, Shillong
6. Department of Methods
7. Department of English Literature
8. Department of Materials Production
9. Department of French
10. Department of German
11. Department of Russian
12. Department of Arabic
13. Department of Radio, TV & Cinematography

Qualifications

For Posts 1 to 12

Essential

i. Consistently good academic record with at least a high second class (B+) Master's degree in the subject concerned.

ii. A Doctorate degree or published work of an equally high standard.

iii. For Posts 1,8=A Post-Graduate Degree or Diploma in English Language Teaching or English Studies, or Linguistics or Phonetics or Applied Linguistics.

iv. For Post No. 12—Specialisation in Modern Arabic

Desirable

For Posts 1,3 and 5

Experience of Producing teaching materials in English and organising ELT Programmes.

For Post No. 2

Special interest in the field of Grammar

For Post No. 4

Special training in testing techniques and relevant statistical procedures.

For Posts 6 and 8

Experience of producing teaching materials in English and organising ELT Programmes.

For Posts No. 7

Special interest in Stylistics and Literary Interpretation and/or Modern English Literature and Criticism.

For Posts 9 to 12

i. Experience of teaching/producing materials in French/German /Russian/Modern Arabic.

ii. High level competence in English.

For Post No. 13

Essential

i. Consistently good academic record with at least a high second class (B+) Master's degree in English or Education or Mass Communication or Mass Communication Arts, with high level competence in English.

ii. A Doctorate degree or published work of an equally high standard.

iii. Specialised training in the teaching of English through Mass Media.

Desirable

Knowledge of broadcasting media and experience of producing TV Programmes.

Qualifications for Associate Fellows

Essential

i. Consistently good academic record with at least a high second class (B+) Master's degree in the subject concerned.

ii. Some teaching and/or research experience.

Desirable

Specialised training in the teaching of the subject concerned.

1. **Assistant Registrar**

Scale : 700-40-900-EB-40-1100-50-1300

i. A Post-Graduate with 4 years experience or a graduate with 8 years experience in a supervisory capacity in a Government or Semi-Government organisation dealing with higher education.

ii. Knowledge of Government of India procedures in financial and service matters.

iii. Experience in the preparation of agenda papers, drafting of minutes for meetings of academic bodies etc.

2. **Manager (Publications)**

Scale : 700-40-900-EB-40-1100-50-1300

Essential

i. A degree or Diploma in Printing Technology from a recognised University or Institute.

i. A minimum of 3 years experience in handling both letter press and off-set process, preferably in a supervisory capacity.

Desirable

i. A university degree with a high level competence in English.

ii. Experience of work in a University or a Government or Semi-Government Text-book Printing Press.

3. **Documentalist**

Scale : 650-30-740-35-810-EB-35-880-40-1000-EB-40-1200

i. At least a second class Master's degree preferably in English.

ii. A degree or diploma in Library Science or Archives.

iii. 5 years experience as Documentalist in a recognised Institution.

Note

1. Allowances at Central Government rates with the benefit of Contributory Provident Fund-cum-Gratuity from the date of their being placed on probation.
2. A higher start in the grade may be considered for specially qualified candidates.
3. Qualifications are relaxable in exceptional cases. Due consideration will be given to candidates belonging to Scheduled Castes/Tribes at the level of Lecturers/Associate Fellows, if they are considered fit.
4. Appointments of Senior Fellows, Fellows and Associate Fellows will be made on contract basis for a period ranging from one to three years.

Age

For Professors : Not below 35 years } Relaxable in exceptional cases.
1. For Readers : Not below 30 years }

Instructions

1. **Separate Application should be made for each post.**
2. Post No. 1 under Professors, Posts Nos. 2,3 and 7 under Readers are permanent. The rest are temporary but likely to continue except posts under Sl. No. 13 of Lecturers which are only for a period of one on two years.
3. Age of retirement for teaching staff 60 years. Age of retirement for non-teaching staff 58 years.
4. Candidates must enclose **seven copies of lists of papers** published, if any, with each application indicating the journals and dates along with **one copy of each of their publications.**
5. In case the Selection Committee finds that the candidates interviewed by them are not up to the mark, the Committee may consider them for a lower cadre post.
6. The selected candidates will be expected to participate in the teaching and research programmes in other departments.
7. The selected candidates will be required to work in Hyderabad or at any of the Regional Centres of the Institute.
8. Candidates selected for the posts of Lecturers/Associate Fellows may be required to work at a Regional Institute of English or one of the State English Language Teaching Institutes.
9. Those who had applied in response to our earlier advertisement for Posts No. 2 and 3 of Readers need not apply again.
10. Candidates called for interview from a place outside Hyderabad will be paid a contribution towards their travelling expenses at the rate of Second Class Railway fare, including sleeper coach charges from the place of their work or residence whichever is nearer by the shortest routes, subject to production of rail receipt.
11. Application forms can be had from the Registrar, Central Institute of English and Foreign Languages, Hyderabad 500 007 (India) on payment of Rs. 2/- in person or by postal order payable to the Director, Central Institute of English and Foreign Languages, and by sending a self addressed envelope (10 cm × 23 cm) stamped for ordinary (55 np) or Registered Post (Rs. 2.55).

Sd/-

L.B. Deshpande
REGISTRAR

Integrated Rural Development

(*Contd. from Page* 31)

There are two main aspects of integrated rural development :

(i) That such plans must form an important part of the overall state or national development plans; and

(ii) all essential inter-related socio-political, economic and technical factors must be taken into account in an integrated manner.

There are certain basic requirements for such an integrated plan of action :

(i) Provision to the community of more-productive and remunerative employment not necessary in agriculture;

(ii) A more equitable distribution of the benefits of production-material as well as non-material and a more equal access to the services which, at the moment, are pre-empted by the powerful and vested interests;

(iii) A fuller participation of the people in development activities and in the relevant decision-making processes, organization of a proper communication systems, designed to create a high level of receptivity among the beneficiaries;

(iv) A more rational management of renewable and non-renewable resources.

Agricultural Universities with their expertise have a significant role to play in this context. viz. in the preparation of the resource inventories, particularly those relating to the physical assets of an area, such as soil, surface water. ground water, and other resources, soil conservation forestry, social farming, use of pastures, live-stock development and the introduction of approptiate practices of agriculture in those areas.

Pantnagar University has done some innovative work,' in this connection, by working on a small Rural Area Research and Action Plan in one of the typical group of villages in Bhikiasen Block of Ranikhet Sub-Division in Almora district. The idea was to take the catchment of the river basin as the area of operations. The results have been published separately and discussed in a seminar on Regional/ Area Planning and Research Development organized by the University in May 1976. The RAPRAP project was an inter-disciplinary approach to all problems of development in the area, including land use, soil conservation, social forestry, improvement and adoption of agricultural practices, livestock development and marketing and has yielded some valuable results which can be summarised as follows :

(a) That by working out certain crop rotations, the average earning of the farmer can be significantly increased;

(b) That the present yields of crop can be increased considerably even under rainfed conditions with proper adoption of new technology via agricultural extention;

(c) That there is a great scope to develop vegetables and fruits cultivation provided the present infrastructure is strengthened. Certain new crops like soybean, maize, vegetables, chillies and triticale could suitably replace the traditional crops and even increase cropping intensity.

(d) A credit plan has to be built up along with plans for improved agricultural practices.

The University has since then drawn up another plan for Bhimtal in Nainital district and is, at the moment, engaged in preparing, in collaboration with the ICAR, a plan for Tehri district in the Garhwal Division.

(*Contd. from Page* 43)

EXPERIENCE :—

For Readers :	At least five years' teaching experience in honours/ post-graduate classes or post-doctoral research.
For Lecturers :	Two years' teaching experience or post doctral research. Qualification and experience are relaxable in the case of exceptationally qualified persons.

SPECIALIZATION :

Lasers and masers, spectroscopy, solid state physics, electronics or other allied fields.

To give a broad understanding, the conceptual basis and intellectual techniques this University is introducing a new 3-Year integrated M. Phil course in Physics after B. Sc. degree from the next session. Specialisations in quantum/ solid state electronics and electronics etc., will also be offered. A good laser research centre under Dr. T.S. Jaseja is also to be set up. Inter-related research in the fields of Spectroscopy, Solid State Electronics and Electronics is sought to be strengthened.

REGISTRAR

Wanted Lecturers in Economics and English in the U.G.C. pay scale. Qualifications according to the U. G. C. Norms. Apply to the undersigned, attaching copies of certificates & mark-sheets matriculation onward with an I.P.O. of Rs. 5/- by 15.2.77. Ladies also may apply.

S. N. Singh
Principal
Tuensang College, Tuensang
Nagaland

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Bohra, Bheru Mohanlal. A model to study the lattice dynamics of hexagonal metals. I.I.T., Delhi.
2. Jagdish Mitter. A study of generalized measures of distortion and paobability or error. University of Delhi.
3. Narasimbha Rao, K.L. Generalized kothe sequence spaces and decompositions I I T. Kanpur
4. Paimajumdar, Himadri. Some aspects of transition phenomena and decay laws in the statistical structure of turbulence. University of Calcutta.
5. Patle, Ramchandra Keshavlal. Convergence and summability of orthogonal series. M.S University of Baroda.
6. Poddar, Samrendranarayan. Plane problems of four cross-shaped or two tine cracks in the mathematical theory of elasticity. University of Calcutta.
7. Saldanha, J.S V. Numerical methods for ordinary differential equations. I.I T. Delhi
8. Sree Hari Rao, V Stability of motion under impulsive perturbations. I I.T Kanpur
9. Umarani, Prakash Girimallappa. Some studies in univalent functions. Karnatak University.

Statistics

1. Visweswara Rao, K. Efficiency of anthropometric indices for the diagnosis of malnutrition. Osmania University.

Physics

1. Chattopadhyay, Deepak Kumar. On certain state assignment techniques and synchronus sequential machine. University of Calcutta.
2. Desarkar, Sanjib Chandra. Studies on state ministration and state assignments of synchronous sequential machines. University of Calcutta.
3. Guhathakurta, Barin Kumar. Orbiting and synchronous sattelite studies of ionospheric electron content and irregularities of electron density of low latitudes. University of calcutta.
4. Gupta, Bharat Bhushan. Analysis of human blood flow through narrow tubes. I.I.T. Delhi.
5. Haldar, Sujit Kumar. X-ray diffraction studies on alloys and thin metallic films. University of Calcutta
6. Jain, Prem Chand. Refinements in the method of structures of analysis of polytypes and determination of crystal structures 21 new CdI_2 polytypes. Univerity of Delhi.
7. Jambagi, Narhari Madhavrao. Synthesis, structural and optical, and properties of mixed halophosphate phosphors. Shivaji University.
8. Kamalasanan, M. N. Study of the spectra of some diatomic molecules (MgBr, CaBr, CaI and SrI). M.S. University of Baroda.
9. Minocha, Lalit Mohan. Development and characterisation of carbon fibres. University of Delhi.
10. Nag, Chitra. Some aspects of ligand field and crystal paramagnetism. University of Delhi.
11. Nagpal, Kailash Chander. Crystal structure and thermal expansion of InSe. Univerfity of Delhi.
12. Narayanamurty, Piratla. Electron spin resonance studies of some X-irradiated doped single crystals. Andhra University.
13. Sanyal, Suvra. Study of fast timing with plastic scintillation detectors and measurement of half lives of 80.2-, 341.1-, 364.5- and 404.8- KeV levels in 131 Xe. University of Delhi.
14. Sharma, Manohar Lal. Investigations on certain models for low energy scattering and resonance production in p p annihilation. University of Delhi.

Chemistry

1. Bandyopadhyay, Santosh Kumar. Studies on triterpenoids. University of Calcutta
2. Baxi, S.J. Studies on chromatography and optical activity. Saurashtra University.
3. Bhalla, Manjit Singh. Studies on the preparation and properties of some new organometallic compounds of molybdenum (VI). University of Delhi.
4. Bhattacharya, Kashi Nath. Studies in quantitation of metal ions by paper chromatography. Jiwaji University.
5. Chacharkar, Madhukar Parshuramji. Some activation analysis with low-level antimony-beryllium neutron source and solvent extraction of indium and iron by diphenyl sulfoxide. Nagpur University.
6. Chattopadhyay, Samir Kumar. Synthetic studies related to diterpenoids Part II: A novel synthesis of ring system related to pseudoclovene. University of Calcutta.
7. Deshpande, Vasant Damodar. Studies on lanthanide complexes. Nagpur University.
8. Haibatti, Shivanappa Khandappa. Studies of vibrational intensities in the condensed phase. Karnatak University
9. Javed Iqbal. Terpene aldehydes of shellac: Isolation reactions, spectra and their role in resin formation. University of Delhi.
10. Johri, Prabhash Chander. Studies on physico-chemical aspects of the formation of melanoidins on the colour of technical sugar solution. Kanpur University.
11. Khare, Vijaya Prakash. The stability constants of transistion metal complexes of hydroxamic acids. Awadhesh Pratap Singh University.
12. Malakar, Debasish. Studies on naturally occurring polycyclic compounds. University of Calcutta.
13. Misra, B.C. Alkali metal ion binding to peptides. polypeptides and proteins. I I.T., Kanpur.
14. Mohanty, Trijama Ranjan. Kinetics of substitution and polymerisation reactions in solution. Utkal University.
15. Natarajan, R. Study of dielectric properties of films using microwave techniques. I.I T. Delhi.
16. Patel, Sanmukhlal Dayalbhai. Pas-formal dehyde polymers: Reactions of aminosalicyclic acids. Sardar Patel University.
17. Pathak, Gaurkumar. Derivetographic Studies of inorganic comounds. University of Calcutta.
18. Pradhan, Dilip Kumar. Chemistry of the extractives of some Indian medicinal Plants. University of Calcutta.
19. Prasunamba, K. Lakshmi. Chemical examination of some leguminous plants and santhesis of insecticidal and fish-toxic oxygen hetrocyclics. Osmania University.
20. Rama Krishna Raju, Nadimapalli. Photosensitised redox reactions. Osmania University
21. Rav, Sibdas. Synthesis of metabolite analogues: Synthesis of comounds related to 4(5)-Aminoilmidazole-5(4) carboxamide. Universiry of Calcutta.
22. Santhamma, M.T. Spectral and thermal investigations on peroxo species of group IV A elements. I.I.T., Delhi.
23. Shukla, Raj Kishore. Kinetics and mechanisms of oxidation of some organic compounds by metallic ion in an aqueous medium. Kanpur University.

Earth Sciences

1. Srivastava, Vijay Kumar. Study of induced groundwater recharge I.I.T., Delhi.

Engineering & Technology

1. Bakshi, R. K. Exhaust emissions and performance evaluation of a spark ignition engine burning methanol and methanol-gasoline mixtures I.I.T., Delhi.
2. Bhattacharya, S. Studies on electrochemical dissolution of iron (as chloride) From iron bearing minerals. I.I.T., Bombay.

3. **Bollapragada, Subba Rao.** Disposal of distillery waste by anaerobic lagoons. Shivaji University.

4. Das, Jamini Kanta. Some studies on flat linear induction pumps for conducting fluids. University of Calcutta.

5. Dube, Govind Prasad. Large plastic deformations of simple structures under transverse impact. I.I.T., Delhi.

6. Krishnasami, M. Decoupled multivariate time series models for multisite streamflows. I.I.T., Kanpur

7. Madan, Bharat Bhushan. Some studies on optimum receiver design via recursive state estimation. I.I.T. Delhi.

8. Raghavan, M. Vijaya. Some aspects of dynamic performance of the human middle ear. I.I.T., Delhi.

9. Raisinghania, Muralidhar. The behaviour of ferrocement slabs under different loads. I.I.T., Kanpur.

10. Ranganathan, R. Reliability analysis and design of prestressed concrete beams at different limit states. I.I.T, Kanpur.

11. Rathor, Tejpal S. Transfer function realization suitable for integration. University of Indore.

12. Sahay, Chittaranjan. Dynamics of discontinuous chip formation in orthogonal metal cutting. I.I.T., Delhi.

13. Shah. S.D Engineering, geological studies of Kadana Dam region, Panchmahals District, Gujarat. I.I.T., Bombay.

14. Siddiqi, M U. A study of permutation in variant linear systems. I.I.T., Kanpur.

15. Suryanarayana. P. Analysis and behaviour of long restrained columns under uniaxial and biaxial bending. I.I.T., Delhi.

16. Syed Gulam Samdhani Studies on crystallization and thermal expansion in certain ternary aluminosilicate and borosilicate glasses. Osmania University

BIOLOGICAL SCIENCES

Anthropology

1. Ghosh, Guru Charan, The finger and palm prints of twelve central Indian dravidian speaking tribes: A comparative study of the Raj Gond Pardhan Kolan Noik Gond. Muria, Dhurwa Dorla, Ollar-Gadaba, Nanakdora Pengo and Kond. University of Calcutta.

2. Malik, Shanti Lal. Age changes and few biological responses at high altitude: A study among male bods of Ladakh. University of Delhi.

Biochemistry

1. Basumallik, Asis Kumar. Studies on serum lipoprotein metabolism in alibino rats. University of Calcutta.

2. Ghatak, Sibnath. Studies on some aspects of carbohydrates transport in Leishmaria donovani. University of Calcutta.

3. Mitra, Gopa. Biochemical studies on the action of tetra hydro cannabinol. University of Calcutta.

4. Pathak, Girdhari Lal. Effect of mutagenic agents on the biochemical activity of pea, cowpea and sesamom. University of Udaipur.

5. Sunanda Prakash. Microbial cremistry of algal bacterial symbiosis in laboratory model high rate oxidation ponds using certain mix algal and Baroda new settle sewage. M. S. University of Baroda.

Botany

1. Dadhich, Laxmi Kant. An ecological survey of the vegetation of Jhamarkotra Hills and its neighbourhood (Udaipur), South-East Rajasthan. University of Udaipur.

2. Daniel, Mammen. Chemotaxonomic studies on some selected angiospermic taxa. M.S. University of Baroda.

3 Dashore, Mohan Shankar. Control of algae in surface water supplies in Rajasthan. University of Udaipur.

4. Hegde, Ravindra Ramakrishana. Histochemistry of reproductive structures in some members of leguminosae. Karnatak University.

5. Kulkarni, Ramchandra Khando. Physiology of salt tolrance in plants. Shivaji University.

6. Linganna Reddy, Datta Reddy. Studies on physiology of helminthosporlum species. Marathwada University.

7. Nag, Bimal, Certain aspects of eradication and utilization of water hyacinth, Eichhonia crassipes, Mart. Solms. University of Gauhati.

8. Nigam, Manorama. Ecological studies with special reference to growth and productivity of Celsia coromandeliana Vahl from Rewa (M.P.). Awadhesh Pratap Singh University.

9. Pullaiah, Thammineni. Embryological investigations [illegible] observations on the basellaceae.

[illegible] es on water metabolism in gram, Cicer arietinum L. Punjab Agricultural University.

11. Subhash K. Studies on experimental mutagenesis of certain members of solanaceae. Osmania University.

12. Vijayakumar. Hormonal basis of growth and yield regulations in dwarf-wheats, Triticum aestivum L. Punjab Agricultural.

Zoology

1. Bajpeyi, Virender Kumar. Ultrastructural studies on certain facts of tubal function Kanpur University.

2. Bandyopadhyaya, Mahitosh. Morphological and histochemical studies on the male reproductive systems of some Indian hemiptera (Insecta). University of Burdwan,

3. Benitur, Jagdish Sanmallappa. Physiology of reproduction in the cricket, Plebeiogryllus guttiventries Walker. Karnatak University.

4. Betole, Ulhas Keshaorao. Studies on the hypothalmo-hypophyseal system of the catfish, Clarias batrachus (Linn). Nagpur University.

5. Bhatt, Devendra Kumar. Studies on the distribution of certain enzymes in the brain of squirrel, Funambulus palmarum by histoenzymological and biochemical parameters. University of Udaipur.

6. Chakravarti, Debaprasad. Cellular intricacies in the regeneration of hydra. University of Calcutta.

7. Chattopadhyaya, Punyabrata. Studies on the external morphology, bionomics and control of Latoia bicolor Walker (lepidoptera: Limacodidae) and Eoeurysa flavocapitata Muir (Homoptera: Delphacidae): Two insects of economic importance. University of Burdwan.

8. Dabhade, Khanderrao Balkrishna. Studies on the hy- [illegible] in a teleost fish, Clarias [illegible]

[illegible] incorporation of estradiol and progresterone by the uterus and other genital tract tissues under the influence of intrauterine devices. Kanpur University.

10 Mitra, Dharitri. Effects of some antibiotics on the reproductive organs of the grasshopper, Gesonula punctifrons Stal (Insecta: Orthoptera: Acrididae). University of Calcutta.

11. Mukhopadhyay, Kamakshyaprasad. Studies on the morphology and taxonomy of the protozoan parasites of Oligochaete worms of West Bengal. University of Calcutta.

12. Pandey, Prabhu Nath. Studies on host preference and selection of certain phytophaqous insects. Kanpur University.

13. Satpute, Laxman. Studies on caryophyllaeidae (cestoda) from siluroid fishes. Ravishankar University.

14. Shukla, Raghav Prasad. Studies on meta cercariae parasitic in some of our freshwater edible fishes with special reference to their identity and significance. Kanpur University.

15. Sinha, Narendradeo Prasad. Studies on some aspects of water and electrolyte metabolism in certain amphibious teleostean fishes. Bhagalpur University.

16. Sobhana, B. Studies on certain cyrinid fishes of Kerala. University of Kerala.

17. Venkata Reddy, V. Studies on mechanisms underlying acclimation to salinity in the fresh water field crab, Paratelphusa hydrodromous (Herbst). Sri Venkateswara University.

Medical Sciences

1. Kohli, Krishan Kumar. Biochemical effects of dieldrin. University of Delhi.

Agriculture

1. Agrawal, Mohan Lal. Manurial studies on onion, Allium cepa L, Kanpur University.
2. Bashisht Narayan. Mineralogy of Vindhyan soils in relation to erosion and soil development. Kanpur University.
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